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ABSTRACT

Over the years, research and evaluation practices have influenced and been influenced by intervention procedures in the school system and classroom. This document discusses the historical influences of research and evaluation on interventions in schools conducted in the past, and outlines important trends, issues, and suggested practices for future work. Historically the methods in scientific psychology have greatly influenced the nature of interventions and the research methodology used to evaluate the outcomes. But most significantly influencing interventions in schools have been the three basic theoretical models of human behavior: psychodynamic, behavioral and cognitive-behavioral. The report offers several major exemplary characteristics of interventions that have generalizability to diverse school populations: prevention--building positive behaviors; integrative--integrating several theoretical perspectives to provide a cohesive framework; and multi-level--reflecting needs of those who might be influenced by the program. It is suggested that future directions include an ecological approach. The paper concludes with recommendations from a methodological and training framework. (Author/KMF)

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Advances in Research and Evaluation on Interventions in Public School Settings¹

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Over the last fifty years, various theoretical dispositions and frameworks have influenced interventions in the public schools as well as the research and evaluation methods/technologies of their outcomes. For school psychologists, the theoretical orientations have been as variable and changing as the development of the speciality of school psychology. In fact, a cursory view of the literature directly and indirectly related to interventions in public schools will reflect this trend. A detailed search for literature reviews concerning a history of research and evaluation on interventions in public school settings revealed that none had been systematically accomplished in the last decade. To review and systematically categorize all of the research and evaluation on interventions in schools would be a lengthy undertaking and take more space and time than this paper allows. (However, it would be an excellent endeavor for a book.) In this presentation, I will discuss the historical influences of research and evaluation on interventions in schools conducted in the past, outline important trends, issues, and best practices for future work, and conclude with recommendations from a methodological and training framework.

¹ In C.A. Maher (Chm.), Research and evaluation in school psychology: Current status, future directions. Symposium presented at the annual meeting of the American Psychological Association, Montreal, September, 1980.

Historical Trends

Intervention has been defined by the American Heritage Dictionary as "any interference that may affect the interests of others". In public school settings this interference has ranged from teaching problem solving abilities to children (Luchins, 1942; Spivack and Shure, 1976) to teaching effective classroom management strategies to teachers (Sulzer, Azaroff and Mayer, 1977) to evaluating school psychologist's consultation on a system (Stewart and Medway, 1978). As mentioned above, these interventions have been influenced by various theoretical perspectives and issues. However, I will submit it is the interaction of our professional and personal perspectives/theories that have influenced research and evaluation activities on interventions, rather than a singular nomological network.

George Kelly has described people as scientists seeking to understand, predict and control their worlds (Kelly, 1958). In short, society has been infected with the unstoppable motive to make sense out of experiences. Thus, the course of action we take depends upon the explanation or meaning we attribute to events we encounter. The meaning we experience is a "functional" truth for us but we are always reminded that any observed event can be given many interpretations. Typically, we select the interpretations which we believe will serve our personal and professional purposes: tending to validate our theories. For example, if psychologists believe that school psychologists consulting with teachers will increase the teaching effectiveness in schools, then professionally we will construct interventions that are predisposed to

"discover" evidence of increased teaching effectiveness. Interventions in public schools, and the research and evaluation of these, have therefore been influenced by several personal and professional factors. These will be discussed in light of their influence.

Scientific Psychology. The methodology and substantive issues surrounding scientific psychology in the 1900's has necessarily influenced the intervention practices as well as their research and evaluation outcomes. Scientific psychology has developed essentially along two parallel avenues: they have come to be known as experimental and correlational psychology. The quest for the general laws expressing behavior as a function of the surrounding environment (experimental) was facilitated by Weber (1846) and Fechner (1860). Many psychologists manifested this approach with respect to interventions in the schools. They emphasized the need for operationalism and the dangers of introspectionism, intuitivism and "common sense" psychology (Beighley, 1954; Estes, 1944; Flanders, 1951; Judd, 1908; Lewin, Luppitt, & White, 1939; Newman and Jones, 1946). In fact, the interventions following that particular method were open to the same criticisms that were leveled against experimental psychology: they were involved in a delimiting range of situations and variables were considered in controlled and fixed conditions that did not allow the inclusion of relevant variables in the scientific research of these interventions. In addition, the research with respect to these interventions, by their very nature, emphasized the main effects when analyzing the data, while the exceptions were considered error variance. Over time,

it has been realized that laboratory control and the experimental, manipulative research strategies are not sufficient by themselves to include all the relevant variables when studying interventions in public schools. The interventions themselves emphasized the behaviors which were most accessible to control and quantification, which may have not been the most appropriate avenues to begin intervention. In contrast the correlational approach influenced the intervention process by promoting strategies which attempted to elucidate relations already existing in the school and emphasize the differences among individuals within specified interventions. Cattell, who launched the individual differences movement, promoted a theory and perspective that was to have a tremendous influence on interventions in public school settings: individual differences within interventions might have generalization effects in other areas within a school setting. The research on interventions within this strategy was also popular and widespread (Battle, 1966; Brophy and Good, 1974; Gray and Allison, 1971; Hunkins, 1968; McNeil, 1968). However, problems also existed within this approach: the generalizations made from the research on these interventions were limited to relationships of the variables measures; it also was impractical to extend this strategy to look at all the relevant variables in a large number of situations.

Without quoting, categorizing and labeling all the interventions researched and evaluated in the last decade, quarter century or century it should be apparent that the methods in scientific psychology have greatly influenced not only the nature of the interventions but also

the research methodology used to evaluate the outcomes. There are other issues that have influenced the interventions conducted with public school settings. Most significant have been the theoretical models of human behavior posited over the last century.

Models of Behavior. As I perceive the intervention process, there are three basic models that most intervention processes have followed: psychodynamic, behavioral and cognitive-behavioral. They have influenced the research and evaluation processes/practices in classroom and school interventions. The psychodynamic influence can be traced to Freud's emphasis of early events and relationships of children and their later influence on emotional and personality development. In terms of interventions, child guidance clinics oriented approaches that were kindred to the clinically trained psychoanalytical psychologists. As in the case of Freud, most psychodynamically oriented interventions emphasize the person rather than the environment in their interventions. Ego, defense, anxiety, were basically individual characteristics conceived within the intervention process, their variations were comprehended by assessing other characteristics of the individual and interactions with other individuals. The literature is plentiful with research and evaluation on interventions with this perspective. The issues with this approach is that the questions asked and issues illuminated gave rise to interventions, methods and techniques that were seemingly myopic in nature.

Another model of behavior, that of the behaviorists, also used the individual framework of the person for the intervention process.

However, this perspective emphasized the environmental aspects and their effect on the person. Beginning with Skinner (1953, 1954) the intervention process was conceived in terms of the use of operant conditioning to solve human problems in school settings. The literature is also replete with research on intervention processes using a behavioral model (LaRowe, Tucker and McGuire, 1980; O'Leary and Drabman, 1971; Walker, Hops and Johnson, 1976; Workman and Dickenson, 1979). While these are random examples of this approach, there are more comprehensive reviews available that demonstrate the point (e.g. Franks and Wilson, 1978, 1979, 1980; Davidson, Clark and Hamerlynck, 1976, 1977, 1978, 1979 and 1980). Similar problems exist with the behavioral approach as with the psychodynamic orientation with additional issues: limited perspective of intervening with the individual as affected by the environment; lack of research data to suggest systematic generalization of research outcomes, and an orientation that emphasizes a non-interactive, singular approach to intervention. At this point, it is important to note that it would be irrational, illogical, and foolish to deny that the research and evaluation on interventions using the above two models has not yielded useful information for effective interventions in public school settings. Rather, there are perhaps more efficient ways of conceptualizing research and evaluation with respect to intervention processes. The cognitive-behavioral and related approaches are oriented to this end. These models have perhaps attended to the above criticisms by integrating the technologies of behavior therapy with the issues of cognitive theories of Kelly, Ellis, Beck and Singer (Meichenbaum, 1977).

The major emphasis of these interventions is the integration of cognitive events in the process of behavior change. In recent years these areas of intervention and related research have been expanded to include other areas such as cognitive/affective/behavioral approaches, within public school settings (Allen et al, 1976; Elias, 1980; Gesten et al, 1978; Leger et al, 1979). The audience may at this point, react to the exclusion of other important theories of behavior such as: developmental, humanistic, existential, etc. The point I am attempting to make is that the above three models of behavior have dealt with the major issues of intervention differently: how to account for important variables in natural settings while providing a more appropriate approximation of the real world setting. The cognitive-behavioral approach seems to take this issue into account better than the others. One could easily argue that the developmental position of behavior is just as accountable to the issue. The intent however, is to highlight the major issue of research and evaluation of interventions in public school settings, not solely how these practices were influenced.

In summary, intervention approaches within the school setting have been undergoing major revisions, especially in the last decade. Treatment strategies, mentioned above, that have used only one course of action, in limited settings, are now being refuted. As an example, the past inability of behavior therapies to incorporate cognitions and covert processes in their interventions have apparently limited their usefulness and generalizability (Lazarus, 1977). More innovative strategies are continuously being called for and developed, with major

foci on preventing and remediating psychological deficits, strengthening psychological assets and advancing the understanding of human interaction. The above factors that have operated upon the advances with interventions and the research and evaluation of these strategies are continuously being confronted. The end result being some recent advances and concepts relating to the research and evaluation of interventions in public school settings. The following section will attempt to delineate areas of intervention processes that appear to have generalizability to diverse school settings and populations.

Model Interventions

As with the general scope of the paper, it would be impractical to attempt to delineate specific intervention practices that are superlative. Rather, the intent is to offer exemplary characteristics of interventions in public school settings that appear to have generalizability to diverse school populations. At this point, I must submit a disclaimer if a particular intervention is not mentioned as exemplifying a model characteristic. There seems to be two major exemplary characteristics:

Prevention. Prevention as a characteristic of interventions in a public school setting is a noble and admirable goal. For an intervention to be considered preventive, a significant shift in focus is required from how sick the individual is on how the damage can be remediated to how can positive behaviors (usually mental health behaviors) be built. Professionals in the educational and mental health field have perceived preventive as "unrealistic, virtually impossible to achieve short of social revolution, illusive and mythical and too difficult to verify" (Goldstein,

1977, p. 19). However, during the past five years prevention through intervention in public school settings has been the focus of research, books and conferences. The conceptual framework of these preventive interventions revolve around three basic issues: a) they are based in crisis theory, (ie.) there are critical times in one's school and personal life when certain interventions can decrease the prevalence of emotional disabilities later on; b) these interventions are intended to prevent needless psychopathology and maladjustment in the school setting as well as promote levels of positive mental health; c) the conceptualization of preventive interventions in school settings must be within a distinct socio-psycho-cultural-educational model rather than within the medical model. Interventions within this framework have far reaching implications for a major social institution such as a school. While there is ongoing debate on exactly what constitutes prevention, within reasonable guidelines, various major interventions in public school settings have met this important intervention characteristic. First, Program for Education in Human Behavior (Ojemann, 1969), is based on a theory that an understanding of the many variables influencing human behavior would enhance a student's capacity to effectively deal with others. The main emphasis is to use education about human behavior as a preventive intervention. Second, Allen and his colleagues (Allen, Chinsky, Larcen, Lochman and Selinger, 1976) provided a comprehensive approach to prevention in a school setting. They implemented an interpersonal social-cognitive skills training curriculum in a public school setting. Others have similarly successfully completed interventions in this vein (Elardo, 1977;

Gesten, de Apodaca, Rains, Weissberg and Cowen, 1978; and Spivack, Platt and Shure, 1976). The key to these generalizable preventive interventions seem to parallel Levine and Graziano's (1972) suggestion: "the ideal of prevention is most closely approximated through designing curricula and teaching methods which can be broadly implemented, which maximize individual development and minimize the dysfunctional aspects of the schools" (p. 559). In most cases these public school interventions would seem to have generalizability to various populations in the school setting.

Integrative and Multi-level. A successful intervention in the public school setting that has been generalizable across diverse school populations probably have to be both integrative and multilevel. Integrative in the sense that the interventions take into account more than one theoretical perspective that provides a cohesive framework; multi-level to reflect the varied needs of those who might be influenced by the program. The work of Cowen and his colleagues (Cowen, Trost, Lorion, Dorr, Izzo and Issacson, 1975) Merchenbaum (1977) and Camp (1976) are superlative examples of cohesive comprehensive intervention programs. Interventions within this rubric usually have used teachers as resources for the delivery of the interventions. Besides expanding the impact of these professionals there are other specific benefits: interventions such as these that use teachers, increases active involvement, promotes ownership of the program and increases the likelihood that the interventions will continue after the "consultants" have left the setting. In most cases, these original interventions grow and further develop as a direct result of using an integrative and multi-level approach.

Finally, there are exemplary characteristics of interventions worthy of mention that relate to both of the above characteristics. First, a precise and clear definition of treatment rationale and methods/procedures used are necessary. It should not be a surprise that most interventions reported in the literature do not adequately meet this condition. Second, objective criteria that can be used to assess the effectiveness of the intervention are imperative. Flanagan (1971) recommends "intermediate criteria" for most interventions. Intermediate criteria include measured performance or behaviors that also can be desirable outcomes and assumed predictors of reduced incidences of a behavior.

In summary, it should be noted that there are limited exemplary characteristics of interventions in public school settings. My opinion is that this is not reflective of the interventions themselves but rather indicative of the state of the art and science of research and evaluation on interventions in public school settings. The next section will elaborate upon these issues and provide an overview for direction of the future in this area.

Future Directions

Issues and Possible Answers

As psychologists, we are usually accustomed to thinking and acting about interventions by looking at the personalities of the people independent of the settings. This is reflected in a variety of interventions and theories of behavior both past and present. My feeling is that the effectiveness of the interventions proposed in school settings as well as the research and evaluation of their outcomes is a direct concomitant of

our assumptions about human behavior. A problem that must be addressed in future research and evaluation on interventions in public school settings is validity and generalizability of the outcome. More specifically, there are different frameworks from which one can view an intervention and a school. One perspective that dominates neither intervention practices nor research and evaluation strategies is an ecological approach. In this context the ecological framework refers to viewing the interventions via the settings, regularity and structure of the school environment as they affect individuals and the concept of ecological validity. The ecological approach, however, highlights other important issues. The ecological approach necessarily asks us to suspend our values of being concerned with individuals and individual differences. "Ecology is the study of systems at a level in which individuals or whole organisms may be considered elements of interaction" (Margalef, 1968). The ecological approach also has several implications at the macro (school-community) and micro (classroom) levels. Clearly, viewing interventions from this perspective present interesting possibilities for reviewing the interactive relationships of the various systems and how they affect the individuals. Rather than questioning curricular/instructional reforms, better mental health for pupils, etc. we question the very organization and structure of schools and schooling. This would lead one to the research issues that confront this approach.

As previously described, the influence of scientific psychology on intervention in public schools has been profound. However, as R.B. Cattell (1966) has pleaded for flexibility in design and analysis that

transcends the traditional dichotomy (experimental vs. correlational), the ecological approach and needed advances in interventions in public school settings dictate new research and evaluation orientations. To this end there are several possible avenues for discussion. The interactive strategy of research has been promoted by various professionals (Cronbach, 1975, Phillips, 1979). Essentially, the interactive approach accomplishes the following which seem to be compatible with the above discussion:

- 1) This research strategy takes into account the relevant variables in natural settings providing a better approximation of real world settings.
- 2) The interactive approach has the capability to detect interactions within the environment of relevant variables.

This research strategy would seem especially important when considering the relationships and effects of various interventions within a school system. To this end a recently posited position by Wachtel (1980) seems appropriate:

"The answers one gets in research depend on the questions one asks... Both greater emphasis on observation - a riskier enterprise than experimenting, but more likely to yield new ideas - and greater attention to detailed, critical and thoughtful theorizing seem to me essential if we are to move past proving the obvious and on to the accelerating curve of discovery shown by other sciences."
(p. 407-408).

The issues raised by the ecological approach, interactive research strategies and Wachtel (1980) are certainly, in theory, compatible when one considers interventions in a public school setting. However, to date, there has been minimal if any research and evaluation integrating the above issues.

Conclusion

It would seem that the responsibility and response of school psychology with respect to the future of research of interventions in public school settings is multifaceted:

- 1) There is a need for the integration of a variety of perspectives (ecological, interactive and observational) in the design of valid and generalizable interventions and resulting research strategies in public school settings. The stage of hypothesis generating is upon the times of interventions and school psychology rather than hypothesis elimination.
- 2) Ecological validity should be a strong consideration in the replication of the generalizable and exemplary research projects mentioned in the previous section. Research and evaluation with respect to interventions in public school settings must expand their horizons and perspectives.
- 3) Research and evaluation of interventions in school settings should not await the development of a comprehensive theory of intervention. This ideal theory is today non-existent and will probably follow observations and research by decades and perhaps centuries as was the case with the advancement of other "hard sciences". We definitely require more powerful and interrelated ideas about the intervention processes and its advancement. However, this would seemingly come with time.
- 4) The other side of the coin - must intervention practices in the schools await rigorous assessment of these interrelated ideas? The history of research in this area provides a resounding no! As with most interventions, research and practice usually closely parallel each other. Teachers, administrators, psychologists and others will probably be experimenting with alternative intervention styles before any definitive theory has emerged.
- 5) There is a strong and clear need to orient and sensitize students in school psychology training programs to the above influences and issues. Rather than consuming and applying research, graduate students in school psychology should be discussing, discovering and developing the above interrelationships as they impinge upon research and evaluation on interventions in public school settings.

As mentioned in the beginning of this paper, there have been a variety of historical influences on research and evaluation of interventions in

public school settings. This manuscript has attempted to re-orient professionals to recent advances but as important future directions for their endeavors.

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